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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/879,456 | 06/13/2001 | Melanie Brunner | 48662/DIV | 6527 |

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KEIL & WEINKAUF
1350 CONNECTICUT AVENUE, N.W.
WASHINGTON, DC 20036

EXAMINER

WITHERSPOON, SIKARL A

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| ART UNIT | PAPER NUMBER |
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1621

DATE MAILED: 08/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/879,456

Applicant(s)

BRUNNER ET AL.

Examiner

Sikarl A. Witherspoon

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 17-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 17-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/581,843.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The examiner has considered applicants' response filed June 29, 2004. The arguments found therein were not persuasive, and as such, the following rejection has been maintained.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amend (US 2,070,770).

Applicants claim a dicarboxylic acid diester mixture selected from the group consisting of a cyclohexane-1, 2-dicarboxylic acid (diisopentyl) ester obtained by hydrogenation of di (isopentyl) phthalate; a cyclohexane-, 2-dicarboxylic acid di (isoheptyl) ester mixture obtained by hydrogenation of di (isoheptyl) phthalate; and other 1,2-di-C₆₋₁₁ esters of cyclohexanedicarboxylic acid, as recited in the instant claims, obtained by hydrogenation of corresponding phthalic acid ester. Applicants also claim a method of increasing the plasticity of a plastic product by admixing a plasticizing amount of at least one of the dicarboxylic acid mixtures defined in claim 17; and a plastic product comprising a plasticizing amount of at least one of the dicarboxylic acid diester mixtures of claim 17.

Amend teaches a process for the hydrogenation of alkyl phthalates to the corresponding alkyl hexahydrophthalates (cyclohexane-1, 2-dicarboxylic acid alkyl ester). The phthalates employed in the process include higher alkyl phthalates having up to as many as 18 carbon atoms (col. 4, lines 12-17), such as octyl, dodecyl, and octadecyl phthalates. The products obtained by the process have useful applications in the preparation of new and improved plasticizers, etc., (col. 5, lines 8-10).

One difference between Amend and the instant invention is that Amend does not *expressly* teach the specific cyclohexane-1, 2-dicarboxylic acid esters claimed in the present invention, i.e., the di-isoheptyl ester, di-isononyl ester, and di-isodecyl ester.

However, Amend clearly teaches that alkyl phthalates having *up to* 18 carbon atoms are employed in his hydrogenation process. Such a high range of carbon atoms clearly encompasses compounds within the scope of the present invention. Accordingly, it would have been suggested to a person having ordinary skill in the art that any alkyl phthalate having up to, and as many as 18 carbon atoms may be employed in the referenced process. A person having ordinary skill would have been motivated to employ the process taught by Amend so as to hydrogenate a given alkyl phthalate to the corresponding cyclohexane-1, 2-dicarboxylic acid ester. It would have also been apparent to a person of ordinary skill that the product formed may be a mixture comprising mixed dialkyl phthalates as well as the desired compound, depending on the starting compounds present in the hydrogenation reaction mixture (col. 2, line 39 to col. 3, line 12). Accordingly, the instant claims are rendered obvious in view of the teaching of Amend.

Another difference between Amend and the present invention is that Amend does not expressly teach that the plastic product that has been enhanced by one of the compounds at issue is PVB. However, since Amend broadly teaches that the alkyl phthalates prepared by his process are used to prepare improved plasticizers, it would have been suggested to a person of ordinary skill in the *art*, that PVB is one such plastic product that could be improved with the application of a compound made by the process of Amend's invention; as such, this limitation is also rendered obvious by Amend.

Response to Arguments

Applicant's arguments filed June 29, 2004 have been fully considered but they are not persuasive. Applicants argue that Amend (the reference relied upon for the rejection of record) discloses hexahydrophthalates having *straight-chain* alkyl residues, and that the present claim are directed to mixtures of isomers of dicarboxylic acid diesters, "at least *some* of which" would have *branched* alkyl residues. Applicants go on to argue unexpected, advantageous properties of cyclohexanedicarboxylates having branched alkyl residues over those having linear alkyl residues; applicants provide a copy of comparative examples submitted with the European counterpart of this PCT application.

The examiner contends that while applicants' arguments and comparative examples showing unexpected properties of cyclohexanedicarboxylates having branched alkyl residues may be effective as it pertains to cyclohexanedicarboxylates taught by Amend as having linear alkyl residues, the arguments as a whole do not

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overcome the rejection of record. This is due to the fact that Amend teaches hexahydrophthalates having straight-chain alkyl residues, as would result, for example, from the use of dialkyl phthalates prepared from straight-chain primary alcohols (col. 3, line 17). These hexahydrophthalates having straight-chain alkyl residues read on the mixture of 1,2-di-C₆-esters of cyclohexanedicarboxylic acid recited at the end of claim 17 in the instant invention. As such, the rejection of record is deemed proper.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

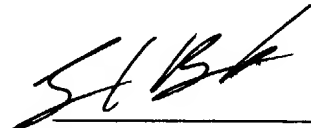
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sikarl A. Witherspoon whose telephone number is 571-272-0649. The examiner can normally be reached on M-F 8:30-6:30.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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